Product Evaluation

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-491

Effective Date: June 1, 2016
Re-evaluation Date: June 2020

Product Name: UC-3 Standing Seam Metal Roofing Panels Installed Over an Insulated Steel Deck

Manufacturer: Firestone Building Products, LLC
250 West 96th Street
Indianapolis, IN 46260
(800) 428-4442

General Description:
UC-3 standing seam metal roof panels installed over an insulated steel deck. Panels are either 22-gauge or 24-gauge steel, 0.032" aluminum, or 0.027" zinc. The steel panels have a maximum width of 20". The aluminum panels have a maximum width of 16". The 22-gauge and 24-gauge steel material is ASTM A 792 AZ-50 hot dipped Galvalume or ASTM A 653 G-90 galvanized steel with an optional Kynar 500/Hylar 5000 painted finish. The aluminum is ASTM B 209 minimum 0.032" thick. The zinc panels are 0.027" Rheinzink, a zinc material.

Limitations:
Roof Framing: Install the standing seam metal roofing panels over an insulated minimum 22-gauge steel deck that is secured to steel purlins.

New Roof Framing Attachment: The roof framing must meet or exceed the uplift requirements of the IRC or IBC. Install as required for resistance to wind loads. The maximum allowable spacing of the roof framing must be as specified in each assembly listed in this evaluation report.

Design Wind Pressures: The design pressure uplift load resistance requirements are specified in the assemblies listed in this evaluation report.

Roof Slope: Do not install metal roof panels on roofs with a slope less than 3:12.

Installation Over an Existing Roof Covering: Not permitted.

Installation:
General: Install the metal roofing panels in accordance with the manufacturer's recommended installation instructions and this evaluation report.

Installation: Installation must be in accordance with the following assemblies:

Assembly No. 1

Design Pressure:	-52.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 72 inches on center. Secured with ITW Buildex TRAXX/5 fastener spaced a maximum of 6" on center. Deck side laps are secured with ITW Buidex TRAXX/1 fasteners spaced a maximum of 24" on center.
Insulation:	Minimum 1" thick and maximum 4" thick polysisocyanurate foamed plastic. Minimum density of 2 pcf.
Wood Structural Panels:	Minimum 7/16" APA rated OSB. Attachment: Secured to the deck with HD HailGard fasteners. The fasteners must be long enough to ensure a minimum penetration of 3 pitches of thread below the steel deck. The fasteners are located in three rows along the 8' length of the wood structural panels. A total of 24 fasteners are used for each 4' x 8' wood structural panel.
Panel:	Minimum 24-gauge UC-3 steel. Maximum 20" width. Attachment: UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, and 0.63" high and is fabricated from 300 series stainless steel. The v-shaped clip tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two UNA-CLAD No. 10 fasteners. 12" on center. Secured to the wood structural panels. Use fasteners long enough to ensure a minimum penetration of 1/4" below the roof deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 2

Design Pressure:	-52.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to steel joists spaced a maximum of 48 inches on center. Secured with puddle welds at every other valley, 12" on center.
Insulation:	Minimum 1" thick and maximum 4" thick polysisocyanurate foamed plastic. Minimum density of 2 pcf.
Cover Board:	Minimum 15/32" APA rated plywood or 7/16" APA rated OSB.
Panel:	Minimum 22-gauge UC-3 steel. Maximum 16" width. Attachment: UC-3 super Clip. The clip is 5" long and 1.23" wide and is fabricated from galvanized steel or 300 series stainless steel. The interlocking upper tab is 1-1/2" tall, 3" long, and is fabricated from G90 galvanized steel or 300 series stainless steel. 30" on center. Two No. 12-13 pancake head screws. Length to be a minimum of 1/2" longer than the thickness of insulation, cover board, and steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 3

Design Pressure:	-52.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 72 inches on center. Secured with ITW Buildex TRAXX/5 fastener spaced a maximum of 6" on center. Deck side laps are secured with ITW Buidex TRAXX/1 fasteners spaced a maximum of 24" on center.
Insulation:	Minimum 1" thick and maximum 4" thick polysisocyanurate foamed plastic. Minimum density of 2 pcf.
Cover Board:	Minimum 15/32" APA rated plywood or 7/16" APA rated OSB.
Panel:	Minimum 24-gauge UC-3 steel. Maximum 20" width. Attachment: UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, 0.63" high, and is fabricated from 300 series stainless steel. The v-shaped clip tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two No. 12-13 pancake head fasteners. 24" on center. Length to be a minimum of 1/2" longer than the thickness of insulation, cover board, and steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 4

Design Pressure:	-52.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 72 inches on center. Secured with ITW Buildex TRAXX/5 fastener spaced a maximum of 6" on center. Deck side laps are secured with ITW Buidex TRAXX/1 fasteners spaced a maximum of 24" on center.
Insulation:	Minimum 1" thick and maximum 4" thick polysisocyanurate foamed plastic. Minimum density of 2 pcf.
Wood Structural Panels:	Minimum 7/16" APA rated OSB. Attachment: Secured to the deck with Firestone All-purpose fasteners and Insulation Fastening Plates. The fasteners must be long enough to ensure a minimum penetration of 3 pitches of thread below the steel deck. The fasteners are applied at a rate of 16 fasteners for each 4' x 8' wood structural panel.
Panel:	Minimum 24-gauge UC-3 steel. Maximum 20" width. Attachment: UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, 0.63" high and is fabricated from 300 series stainless steel. The v-shaped clip tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two UNA-CLAD No. 10 fasteners. 12" on center. Secured to the wood structural panels. Use fasteners long enough to ensure a minimum penetration of 1/4” below the roof deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 5

Design Pressure:	-67.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 60 inches on center. Secured with No. 12-24 HWH, DP5 screws at each flute. Deck side laps are secured with 1/4" x 7/8" HWH screws spaced a maximum of 24" on center.
Insulation:	1-1/2" HailGard Composite Board installed with 12 Heavy Duty HailGard fasteners used per 4' x 8' board.
Panel:	Minimum 0.032" UC-3 aluminum. Maximum 16" width. Attachment: UNA-CLAD UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, 0.63" high and is fabricated from 300 series stainless steel. The v-shaped tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two No. 10-12 x 1-1/2" pancake head wood screws. 18" on center. The fasteners must be long enough to ensure a minimum penetration of 3 pitches of thread below the steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 6

Design Pressure:	-93.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to steel joists spaced a maximum of 48 inches on center. Secured with puddle welds at every other valley, 12" on center.
Insulation:	Minimum 1" thick and maximum 4" thick polysisocyanurate foamed plastic. Minimum density of 2 pcf.
Cover Board:	Minimum 15/32" APA rated plywood.
Panel:	Minimum 0.027" UC-3 zinc. Maximum 16" width. Attachment: UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, 0.63" high, and is fabricated from 300 series stainless steel. The v-shaped clip tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two No. 12 pancake wafer head steel screws. 12" on center. Length to be a minimum of 1/2" longer than the thickness of insulation, cover board, and steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 7

Design Pressure:	-45.0 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 60 inches on center. Secured with No. 12-24 HWH, DP5 screws at each flute. Deck side laps are secured with 1/4" x 7/8" HWH screws spaced a maximum of 24" on center.
Insulation:	1-1/2" HailGard Composite Board installed with 8 Heavy Duty HailGard fasteners used per 4' x 8' board.
Panel:	Minimum 0.032" UC-3 aluminum. Maximum 16" width. Attachment: UC-3 Super Clip. The base of the clip is 5" long, 1.23" wide, and is fabricated from galvanized steel or 300 series stainless steel. The interlocking upper tab is 1-1/2" tall, 3" long, and is fabricated from G90 galvanized steel or 300 series stainless steel. 24" on center. Two No. 10-12 x 1-1/2" pancake head screws. Length to be a minimum of 1/2" longer than the thickness of insulation, cover board, and steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Assembly No. 8

Design Pressure:	-52.5 psf
Deck:	Minimum 22-gauge steel. Attachment: Attached to minimum 1/4" steel purlins spaced a maximum of 60 inches on center. Secured with No. 12-24 HWH, DP5 screws at each flute. Deck side laps are secured with 1/4" x 7/8" HWH screws spaced a maximum of 24" on center.
Insulation:	1-1/2" HailGard Composite Board installed with 8 Heavy Duty HailGard fasteners used per 4' x 8' board.
Panel:	Minimum 0.032" UC-3 aluminum. Maximum 16" width. Attachment: UNA-CLAD UC-3 Expansion Clip SS. The base of the clip is 3" long, 0.88" wide, 0.63" high and is fabricated from 300 series stainless steel. The v-shaped tab is 0.81" wide, 1.56" high, and is fabricated from 300 series stainless steel. Two No. 10-12 x 1-1/2" pancake head wood screws. 18" on center. The fasteners must be long enough to ensure a minimum penetration of 3 pitches of thread below the steel deck.
Panel Seam:	Seamed with an electric seaming tool.

Underlayment: Minimum of one layer of No. 30 (Type II) asphalt felt. Use underlayment that complies with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. Install the underlayment with minimum 4" side laps and 6" end laps. Apply the underlayment with corrosion resistant fasteners in accordance with the manufacturer's installation instructions. Space the fasteners in accordance with the high wind underlayment installation requirements in the IRC or IBC. Optional Underlayment: Firestone Building Products CLAD-GARD SA-FR Underlayment complying with ASTM D 1970 installed in accordance with the manufacturer's installation instructions.

Panel Ends and End Laps: As required by the manufacturer.

Panel Edges: As required by the manufacturer.

Trims, Closures, and Accessories: Install components, such as the eave trim, rake trim, ridge trim, hip trim, and valley trim as required by the manufacturer.

Note: Keep the manufacturer's installation instructions on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.